

Water Measurement Methods

Cliff Pugh, Kathleen H. Frizell, James A. Higgs, Tracy B. Vermeyen, David Rogers, and Bob Einhellig

FY 1999 - FY 2001

Accurate water measurement is critical to management of the limited water resources in the West. Water measurement and water conservation are closely related. To manage water delivery systems, the amount and distribution of flow deliveries must be known. Many farm turnouts within districts do not have any type of water measurement device, or the devices are ineffective and have high maintenance requirements.

- Develop applicable water measurement devices and technology transfer methods
- Compile data on existing water delivery systems currently being used on Reclamation projects.
- Determine appropriate measurement techniques.
- Provide information for proper application of water measurement procedures.
- A comprehensive flow measurement system was installed at the Jones Hole National Fish Hatchery, near Vernal, Utah. The site was visited, installation details were compiled, and the meters were programmed for their individual installations. The monitoring system is part of the mitigation for the Central Utah Project.
- Assistance was given for vortex meter installations at two Reclamation sites in Arizona.
 - Flow measurement assistance was given for the Arch Hurley Irrigation District in Tucumcari, New Mexico. Sites throughout the district were visited, and a plan to upgrade measurement systems was developed in cooperation with Reclamation's Albuquerque office and the Water District.
 - Flow measurement sites were visited in Yuma, Arizona, Provo, Utah, and Dillon, Montana, and designs were produced for radial gate calibrations for flow measurement at Imperial Dam for the Salt-Gila Gravity Canal and the river outlet works.

SCIENCE

And Technology Program



- A closed pipe flow measurement evaluation program was initiated in cooperation with the Billings Office and the Nebraska/Kansas Office.
- Technical assistance was provided to the Kansas/Nebraska Area Office on development of ramp flume designs for semi-portable flumes that will be moved around to key sites in their canal system.